



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,501	11/19/2003	Jishnu Bhattacharjee	M-15260 US	8235

7590 05/19/2006

Theodore P. Lopez
MacPHERSON KWOK CHEN & HEID LLP
Suite 226
1762 Technology Drive
San Jose, CA 95110

EXAMINER

LEE, EUGENE

ART UNIT	PAPER NUMBER
----------	--------------

2815

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/718,501	BHATTACHARJEE ET AL.	
	Examiner	Art Unit	
	Eugene Lee	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-11, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-11, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 3/22/05 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear how the "selected end of the next-to-last spiral" can be the "first end" since in lines 9-10 of claim 6, the "first end" must be "at an outer radius of the spiral." Based on the previous limitations of claim 1, the selected end must be on the inner radius of the spiral 302d (see, for example, FIG. 4). Also, it is not clear how the "selected end" and "corresponding end" can both be the "first end". Appropriate clarification and/or correction are required.

Art Unit: 2815

Claim Rejections - 35 USC § 102

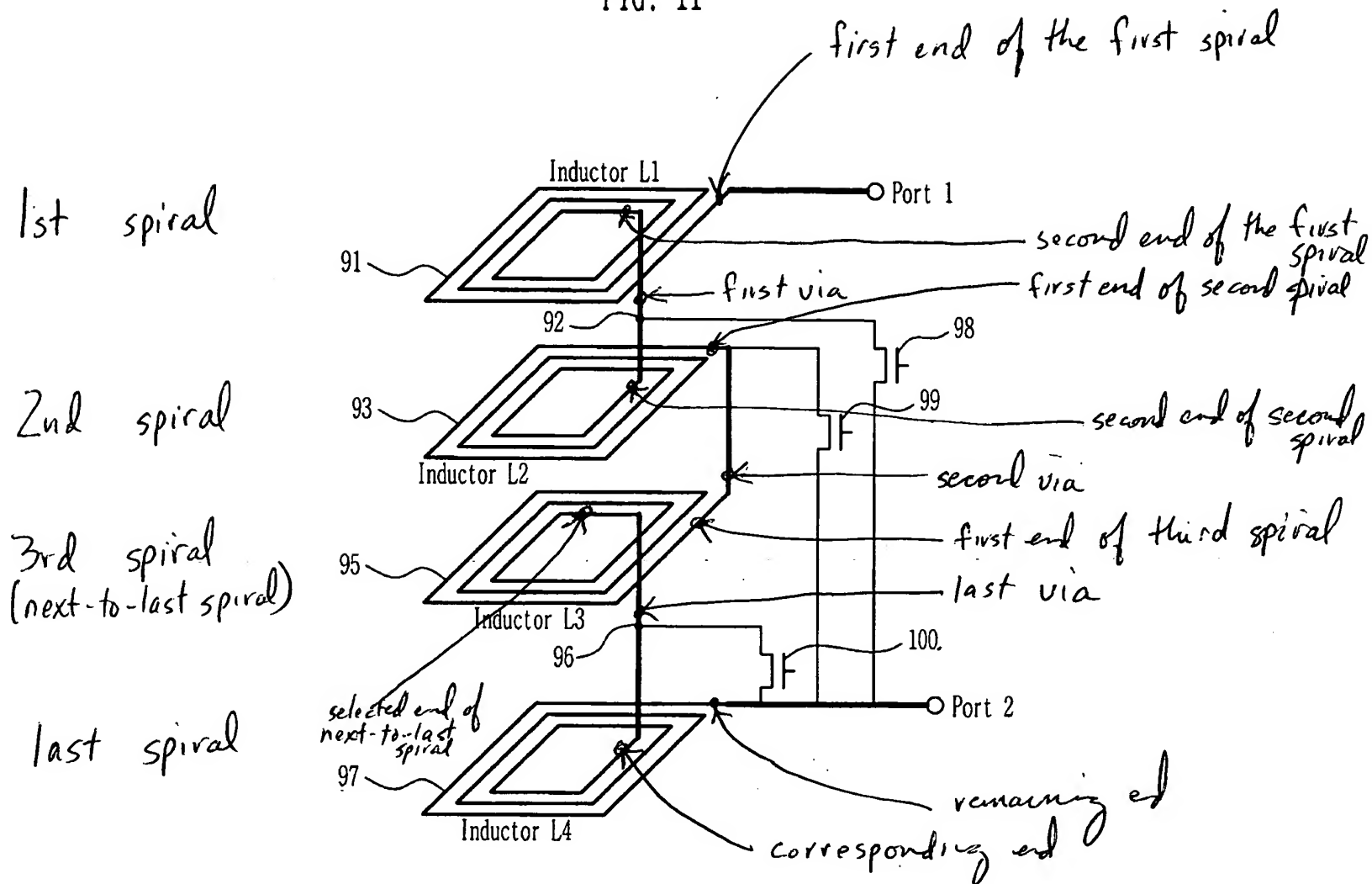
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. In view of the 112 rejection above, claims 6, 17, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al. 6,992,366 B2. Kim discloses (see, for example, FIG. 11, and FIG. 5) a stacked variable inductor (stacked inductor) comprising a semiconductor substrate (see abstract), inductors (plurality of conductive layers/plurality of conductive spirals) L1, L2, L3, L4; and contact electrodes (vias).

FIG. 11



Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2815

7. Claims 5, and 8 thru 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. '366 B2 as applied to claims 6, 17, and 18 above, and further in view of Ahn et al. 6,566,731 B2. Kim does not disclose each turn of each spiral comprising five or more linear segments. However, Ahn discloses (see, for example, column 6, lines 13-15) inductor patterns with a shape of an octagon (five or more linear segments). It would have been obvious to one of ordinary skill in the art at the time of invention to have each turn of each spiral comprising five or more linear segments in order to have a greater Q factor for an amount of space.

Regarding claim 8, Kim in view of Ahn does not disclose each spiral having a thickness of between 1 and to 4 um. However, it was well within the skills of an artisan in the art to optimize the performance of an inductor by adjusting the thickness of a spiral in order to form an adequate inductance without significantly increasing area. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have each spiral have a thickness of between 1 and to 4 um because it was well within the skills of an artisan to optimize the performance of an inductor by adjusting the thickness of a spiral in order to form an adequate inductance without significantly increasing area. See *In re Aller*, 105 USPQ 233.

Regarding claim 9, Kim does not disclose each spiral comprising a conductive metal taken from the group consisting of Cu, Al and alloys thereof. However, Ahn discloses (see, for example, column 6, lines 19-21) metal patterns comprising copper. It would have been obvious to one of ordinary skill in the art at the time of invention to have each spiral comprising a conductive metal taken from the group consisting of Cu, Al and alloys thereof in order to have an inductor containing a high conductive material.

Art Unit: 2815

Regarding claim 10, Ahn discloses (see, for example, column 6, lines 13-15) inductor patterns with a shape of an octagon. Octagons have eight segments.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. '366 B2 as applied to claims 6, 17, and 18 above, and further in view of Jessie US 2005/0068146 A1. Kim does not disclose the first port being coupled to a power supply. However, Jessie discloses (see, for example, paragraph [0079]) a port of an inductor connected to a power supply voltage (power supply). It would have been obvious to one of ordinary skill in the art at the time of invention to have the first port being coupled to a power supply in order to provide a voltage drop across the inductor for other devices to use.

Response to Arguments

9. Applicant's arguments with respect to claims 6-11, 17, and 18 have been considered but are moot in view of the new ground(s) of rejection.

INFORMATION ON HOW TO CONTACT THE USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Lee whose telephone number is 571-272-1733. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2815

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eugene Lee
May 8, 2006

A handwritten signature in black ink, consisting of a stylized 'E' followed by a large loop and a horizontal line extending to the right.

**EUGENE LEE
PRIMARY EXAMINER**